

CalEPA and Tire Crumb Facility Site Visit

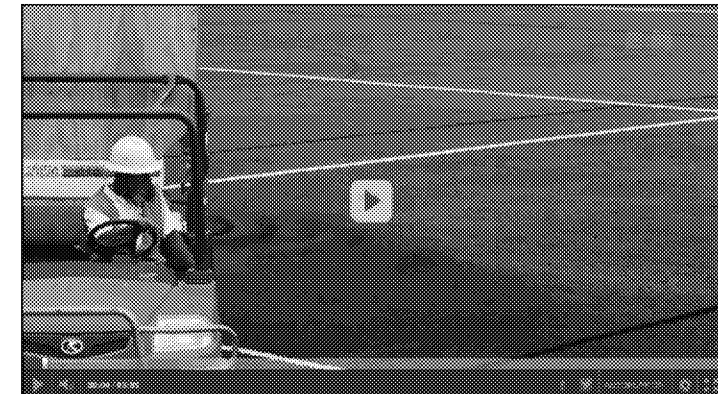
February 8-9, 2016



Background



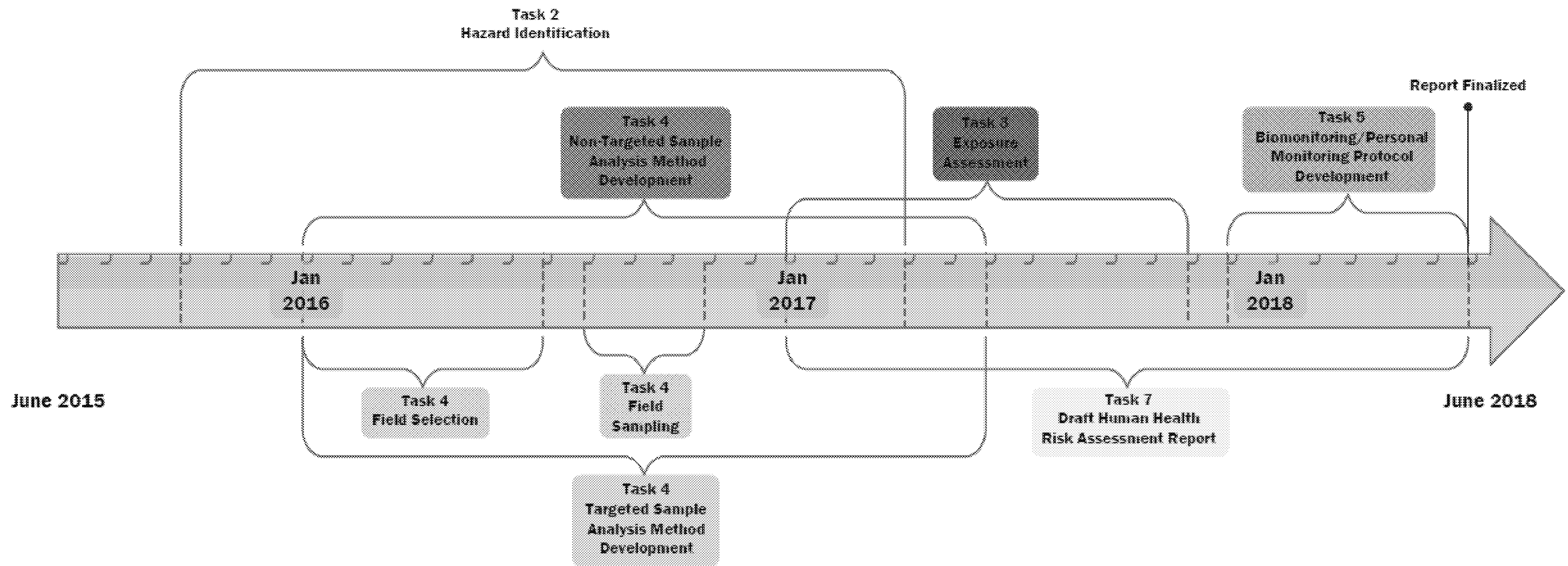
- 2009: Published *A Scoping-Level Field Monitoring Study of Synthetic Turf Fields and Playgrounds*
- 2014: NBC Nightly New Stories
- March 2015: USA Today article
- April 2015: FieldTurf, AstroTurf, SPRINTURF meet with EPA
- October 2015: Senator Gillibrand requested EPA to lead investigation
- November 2015: ESPN E60 segment
- Winter 2015: White House CEQ asks EPA to step in



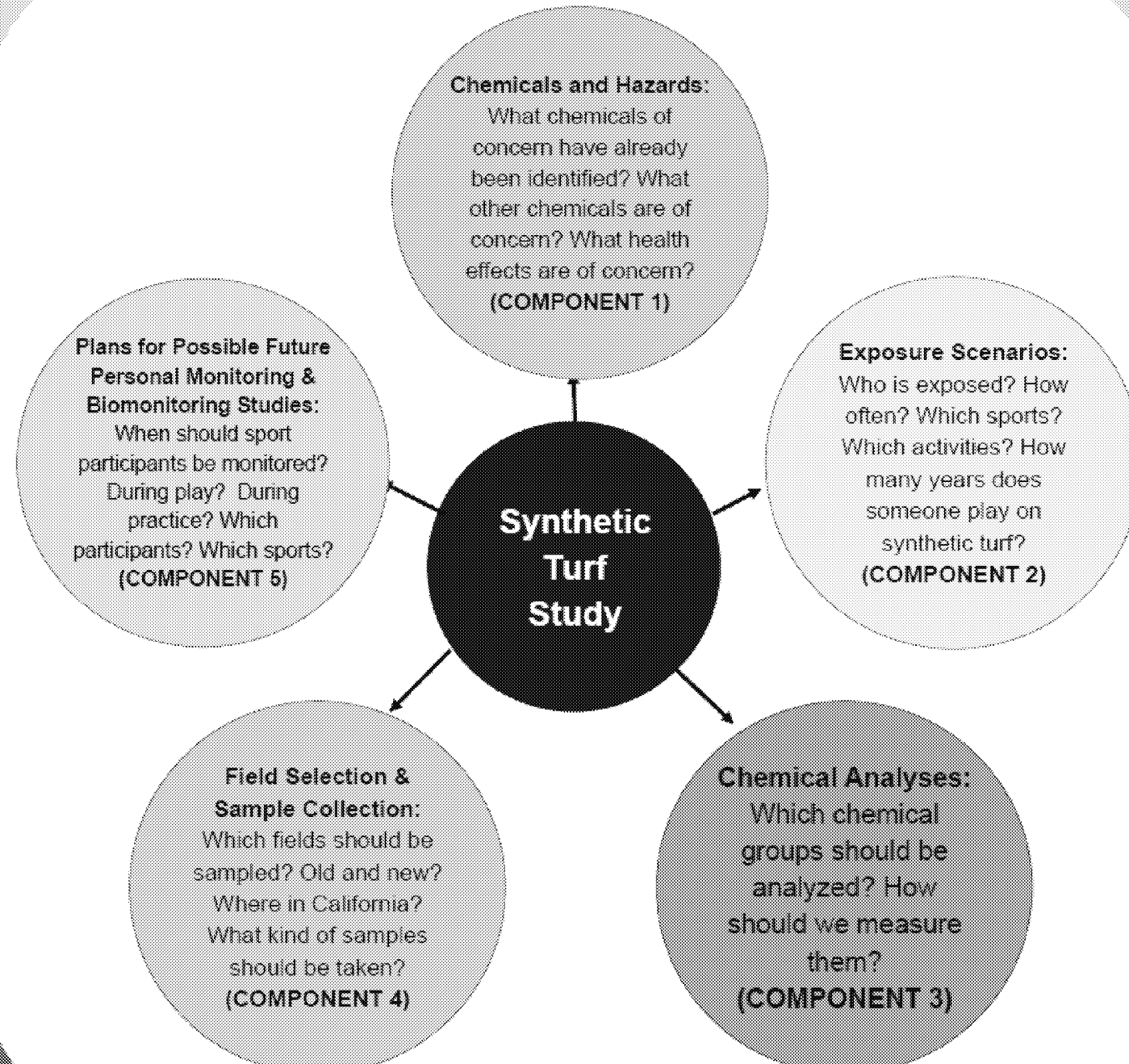
CalEPA: Monday 2/8/16

- Overview of OEHHA Study
 - Task 1: Expert, public and interagency consultation and input
 - Task 2: Hazard Identification
 - Task 3: Exposure Scenario Development
 - Task 4: Characterization of chemicals that can be released from synthetic turf and playground mats and determination of human exposure
 - Task 5: Protocol development for future biomonitoring and personal monitoring
 - Task 6: Reporting
 - Task 7: Health Assessment from play on synthetic turf fields and playground mats

Overall OEHHA Synthetic Turf Study Plan



Study Approach





Meeting Starts at 10:00 AM

Participants can send comments
to SyntheticTurf@oehha.ca.gov
(comments will be summarized by OEHHA staff as time allows)

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Internet participants can send
comments to SyntheticTurf@oehha.ca.gov
(comments will be summarized by OEHHA staff as time allows)

2/8/16

OEHHA Synthetic Turf Scientific Advisory Panel Meeting

Email Questions and Comments to: SyntheticTurf@OEHHA.ca.gov

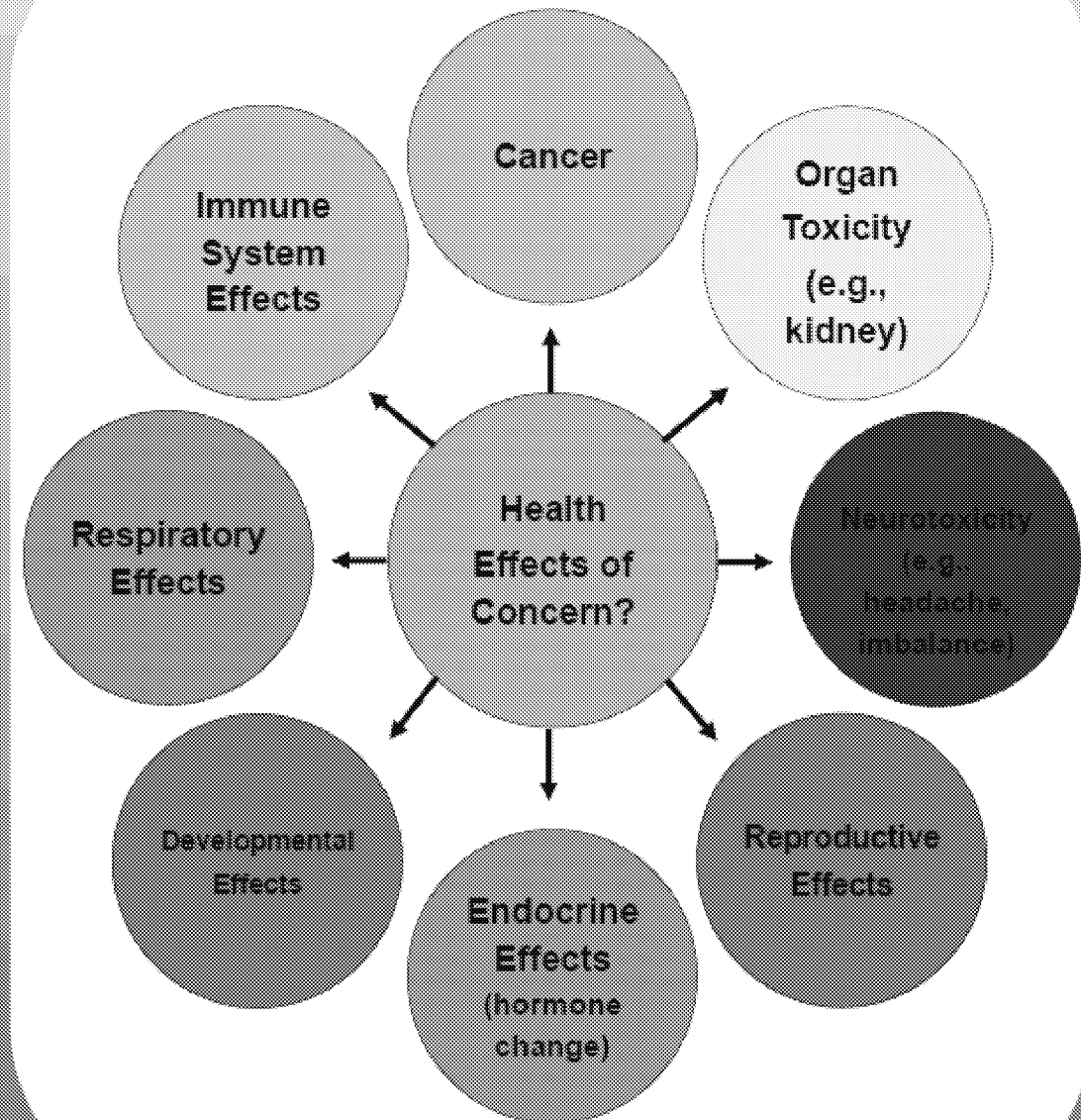
CalEPA

- Meeting
- OEHHA Task 4
 - 4a: Procedure development to analyze chemicals of concern in crumb rubber and artificial grass blades
 - 4b: New (not installed) crumb rubber – Sample collection and identification of chemicals extracted or emitted
 - 4c: Field samples of used (in-field) synthetic turf and playground mats – Sample collection and analyses

Potential Health Effects from Exposure

Chemical	Known Effects	Detected in Turf/Mat Samples	Study
Benzene	Cancer: leukemia; neurotoxicity	Air, surface wipe, crumb rubber and artificial grass blade samples from indoor and outdoor synthetic turf fields and playground mats; athletic tracks; shredded tires	US EPA 2009, Simcox 2010, Simcox et al. 2011, Ginsberg et al. 2011, Ginsberg et al. 2010, NIPHRH 2006, Chang et al. 1999, Lim 2008, OEHHA 2010, OEHHA 2007
Toluene	Developmental effect & neurotoxicity	Air, surface wipe, crumb rubber and artificial grass blade samples from indoor and outdoor synthetic turf fields and playground mats; shredded tires; athletic tracks	US EPA 2009, Simcox 2010, Simcox et al. 2011, Ginsberg et al. 2011, Ginsberg et al. 2010, NIPHRH 2006, Chang et al. 1999, Lim 2008, OEHHA 2010, OEHHA 2007
Mercury	Developmental effect & neurotoxicity	Rubber granulate; artificial turf fields and crumb rubber; air samples above synthetic turf fields	Keml 2006, Menichini et al. 2011, Bocca et al. 2009, Lim 2008, Lim 2009, OEHHA 2007
Manganese	Reproductive & respiratory effect, neurotoxicity	Air, surface wipe, crumb rubber and artificial grass blade samples from synthetic turf fields and playground mats	US EPA 2009, Menichini et al. 2011, Ruffino et al. 2013, Bocca et al. 2009, Lim 2009
Hexane	Neurotoxicity & respiratory effects	Air, surface wipe, crumb rubber and artificial grass blade samples from indoor and outdoor synthetic turf fields and playground mats; athletic tracks	US EPA 2009, Simcox 2010, Simcox et al. 2011, Ginsberg et al. 2011, Ginsberg et al. 2010, Chang et al. 1999, OEHHA 2010
Zinc	Skin, eyes, nose, & throat irritations	Air, surface wipe, crumb rubber and artificial grass blade samples from synthetic turf fields and playground mats; crumb rubber leachate; shredded tires	Zhang et al. 2008, US EPA 2009, Mattina et al. 2007, Keml 2006, Menichini et al. 2011, Ruffino et al. 2013, Bocca et al. 2009, Lim 2008, Lim 2009, OEHHA 2007

Potential Health Effects of Concern

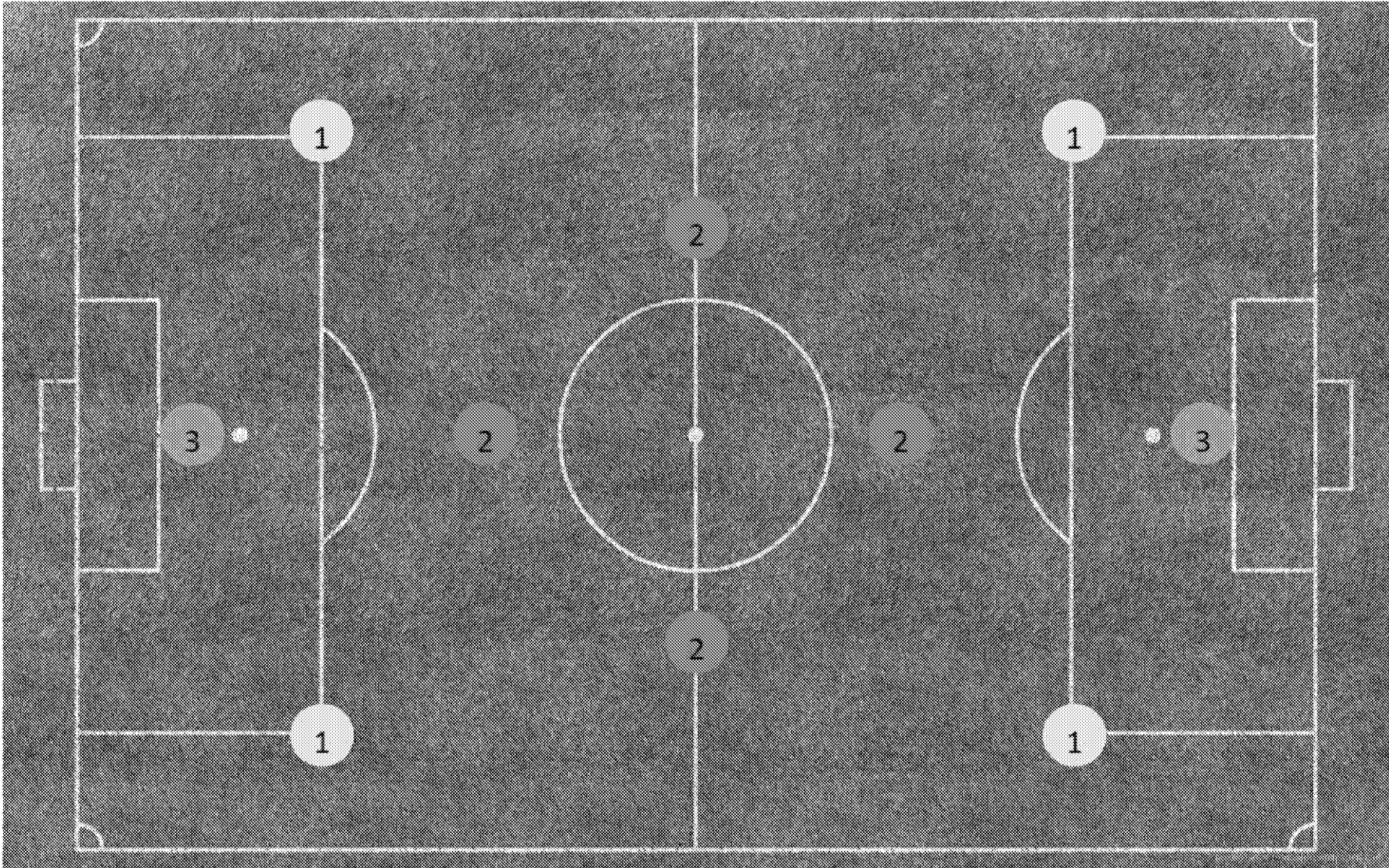


Questions asked to the Panel

- Procedure for sampling
 - New vs. old fields
 - Sampling zones (field)
 - Regions
- Chemical Analysis
 - Extraction: artificial biofluids
 - Saliva
 - Stomach fluid
 - Intestinal fluid
 - Sweat
 - Lung fluid
 - Chemical Groups
 - Organics
 - Metals

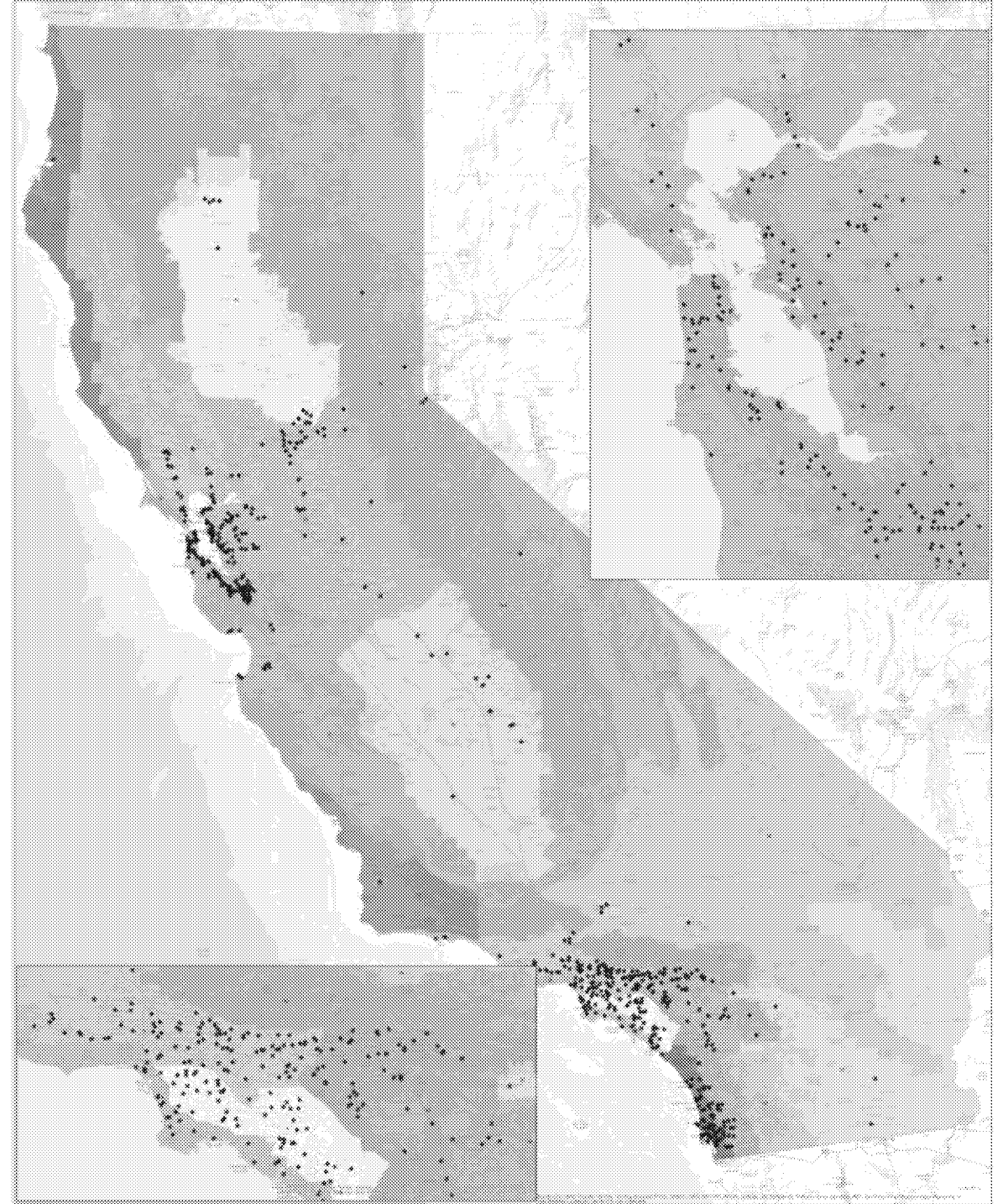


Soccer Field Sampling Zones



16 California Building Climate Zone Areas.

Black dots: 902 synthetic
turf fields containing
crumb rubber



Further Questions

- Will the study be relevant in 2 years?
- EJ concerns
- Analytical methods similar CalEPA vs EPA
- Carbon Black
- Chinese Tires

Ex. 3 [CERCLA section 104(e)(7)(42 USC 9604(e)(7)),]

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Federal Research Action Plan

- Collaboration between EPA, CDC/ATSDR & CPSC
- Objectives
 - Determine key knowledge gaps
 - Identify and characterize chemical compounds found in tire crumb used in artificial turf fields and playgrounds
 - Characterize exposures, or how people are exposed to these chemical compounds based on their activities on the fields
 - Identify **follow-up activities** that could be conducted to provide additional insights about potential risks



Federal Research Action Plan on Recycled Tire Crumb Used on Playing Fields and Playgrounds

Background

Concerns have been raised by the public about the safety of recycled tire crumb used in playing fields and playgrounds in the United States. Limited studies have not shown an elevated health risk from playing on fields with tire crumb, but the existing studies do not comprehensively evaluate the concerns about health risks from exposure to tire crumb.

Federal Research

Because of the need for additional information, the U.S. Environmental Protection Agency (EPA), the Centers for Disease Control and Prevention Agency for Toxic Substances and Disease Registry (ATSDR), and the U.S. Consumer Product Safety Commission (CPSC) are launching a multi-agency action plan to study key environmental human health questions. This coordinated federal action includes outreach to key stakeholders, such as athletes and parents, and seeks to fill important data and knowledge gaps, characterize constituents of recycled tire crumb, and identify ways in which people may be exposed to tire crumb based on their activities on the fields. The Federal Research Action Plan includes numerous activities, including research studies. While additional research questions may require evaluation beyond this year, the information will help answer some of the key questions that have been raised.

Objectives

The specific objectives of this research effort are to:

- Determine key knowledge gaps.
- Identify and characterize chemical compounds found in tire crumb used in artificial turf fields and playgrounds.
- Characterize exposures, or how people are exposed to these chemical compounds based on their activities on the fields.
- Identify follow-up activities that could be conducted to provide additional insights about potential risks.

Research Summary

Federal Research Action Plan

- Research Summary
 - Conduct Data and Knowledge Gap Analysis
 - Outreach to Key Stakeholders, Including Parents and State Agencies
 - Testing of Tire Crumb to Characterize Chemicals, Potential Emissions, and Toxicity
 - Launch Pilot-Scale Study to Characterize Exposure Under Use Conditions
 - Public Comment Opportunities
 - Additional Research Activities

ORCR's Role

- Task 2a
- Meetings with
 - State agencies
 - Academic institutions
 - Non-Governmental Organizations
 - Trade organizations
 - Manufacturers/installers
- Site Visits
 - Crumb rubber manufacturing facilities/installers

“to meet with industry representatives to better understand the manufacturing process and use parameters for recycled rubber used in artificial turf”

Questions?